

BRIEFING PAPER

STRATEGIES FOR ASSISTING THE MARSH ARABS AND RESTORING THE MARSHLANDS IN SOUTHERN IRAQ

8 October 2003

Background

In little more than a decade, Saddam Hussein's regime systematically destroyed one of the world's largest wetlands ecosystems. This environmental disaster, perpetrated in the roughly 20,000 square kilometer marshlands of southern Iraq, has been compared in scale to the drying up of the Aral Sea in Central Asia and the deforestation of the Amazon. The area was once famous for its biodiversity and cultural richness. The marshes were the permanent habitat for millions of birds and a flyway for billions more migrating between Siberia and Africa. Sixty-six bird species may now be at risk. Other populations are thought to be in serious decline. Coastal fisheries in the Persian Gulf used the marshlands for spawning migrations, and they served as nursery grounds for shrimp and fish. Now hauls have been significantly decreased. The marshlands also served as a natural filter for waste and other pollutants in the Tigris and Euphrates rivers, protecting the gulf which has now become noticeably degraded along the coast of Kuwait.

The indigenous marsh dwellers already have a special place in the anthropological and travel literature for their alluring way of life, living in harmony with the environment on man-made reed islands and along the periphery of the marshes in relative isolation. They may have numbered a half a million in the 1950s and a quarter of a million in the early 1990s. In 1991, a populist Shi'a uprising at the end of the Gulf War brought down the full and brutal weight of the Baghdad regime. The military raided settlements, killed tens of thousands of Marsh Arabs – although the actual number may be higher, burned settlements, and killed livestock, destroying the core of the local economy.

The period from 1991 to 1997 was marked by engineering programs which drained the marshes through the construction of manmade rivers and canals of massive proportions and overblown names, diverting water from the marshes to irrigate vast areas for uneconomical and unsustainable wheat production, fill huge depressions or ponds to evaporate, or drain into the Shatt al-Arab. A disproportionate share of the country's limited resources was channeled into these works. By 1999, the drainage of the marshes was largely over. The only marsh of any note was the northern portion of al-Hawizeh which straddles the Iran-Iraq border. The other two marshes, al-Hammar and Central to the west, were totally desiccated. At the beginning of 2003, only seven percent of the original marshlands remained. However, there has been some recent reflooding in small enclaves throughout the marshes. This water appears to be from a combination of heavier than usual snows in the north, the deliberate destruction of structures by people in the area, the opening of gates by local government officers, and the release of water by Iran to the east.

US Government Agency and International Donor Participation

In this highly dynamic, post-war situation, the U.S. Agency for International Development is leading an interagency effort with the U.S. State Department's Bureau for Oceans and International Environmental and Scientific Affairs (OES) to develop an action plan for marshland rehabilitation. The overall objectives of the 12-month program are to:

- Construct an accurate environmental, social, and economic baseline of the remaining and former marshlands to plan interventions and measure their success;
- Assist the marsh dwellers, who will require viable economic opportunities and social institutions that are fair and equitable and give them a voice;
- Improve the management of existing and newly reflooded marshlands and explore options to expand the restoration activities through pilot project interventions; and
- Develop and reach a broad internal and international consensus on a long-term comprehensive rehabilitation strategy.

USAID works closely with other government entities through the Interagency Marshlands Subgroup, the first of many anticipated special task forces addressing major environmental issues in Iraq. The subgroup includes representatives from the State Department, Army Corps of Engineers, U.S. Geological Survey, Environmental Protection Agency, Fish and Wildlife Service, and other agencies. The subgroup meets regularly to explore technical issues, review donor participation, and monitor progress.

It is an aim of the U.S. government to internationalize the program, recognizing that the program's ultimate success depends on both Iraqi and international participation and consensus. Thus far, the following bilateral donors have expressed an interest in supporting or directly participating in the program:

- Great Britain – considering funding activities based on the recommendations of a British technical expert on the next, extended field trip to the marshlands
- Australia – provide technical experts on marshlands soil salinity through the Commonwealth Scientific and Industrial Research Organization (CSIRO), a recognized leader in the field
- Denmark – will consider cost sharing the development of a river navigation model
- Canada – committing funds to marsh restoration, particularly in the areas of biological monitoring and wildlife conservation, based on recommendations of a Canadian expert on the next, extended field trip to the marshlands
- Italy – funding modeling, water budgeting, and environmental assessment through the Iraq Foundation

On the multilateral side, we have engaged the Secretariat of the RAMSAR Convention on Wetlands, which draws upon a roster of internationally recognized experts in wetlands and

marshlands for technical support. United Nations and other international agencies that have shown an interest in becoming involved in as yet to be determined roles include: the World Health Organization, United National Environmental Programme, and the International Organization for Migration. IUCN, the World Conservation Union, has also expressed interest, particularly in working on water flow issues with other countries in the region. UNEP will participate on the next visit to the marshlands under this program.

June Scoping Visit

Implementation of the program was initiated with the fielding of a small technical team to carry out a quick assessment of the current situation in the marshlands from June 15-28, 2003. In anticipation of the long-term program, the objectives of the visit were to:

- Collect information on environmental, institutional, social, and economic conditions in the marshlands to be used to develop a detailed action plan for the program;
- Make initial contacts with key stakeholders, particularly the Marsh Arabs, to understand their priorities, concerns, most recent actions, and determine their willingness to take part;
- Determine the availability of water resources and other data and the impact of looting and burning on facilities, libraries, research centers, and other institutions that could participate in the program;
- Identify potential Iraqi team members and determine their capacity to contribute to the program and their technical requirements; and
- Better understand the working and logistical requirements for carrying out the program over the coming year.

Team members included Peter Reiss, a social scientist who was team leader; Curtis Richardson, a wetlands ecologist; Azzam Alwash, a geotechnical engineer; Doug Pool, an agricultural specialist; Hassan Janabi, a representative of the Coalition Provisional Authority to the Ministry of Water Resources; and Jassim Dowage and Samira Abd Al Shibeab, engineers with the ministry. They were joined on the field visits by staff of the Marine Science Center at the University of Basra and members of the AMAR International Charitable Foundation which provides primary health care to marsh dwellers in Iran and Iraq.

Accomplishments of the Visit

Despite the security and communications concerns, the team's work exceeded expectations during the ten days in Iraq. It began its work with nearly a clean slate. There is virtually no scientific database covering the past 30 years in the marshes. The few studies during the previous regime were politically motivated to give credence to the repressive actions. No social or economic information appear to exist for half a century. During the scoping visit, the team:

- *Extensively visited the existing, reflooded, and drained marshes on the ground and in helicopter flyovers.* It is probably accurate to say that this scoping team was the first scientific/development effort in the Iraq marshlands for at least two decades and the first to begin the systematic canvassing of the region. Previously, all information about the draining of the marshes and its impact was gleaned through remote sensing photography, never on the ground and analyzed from a distance. The team found many areas of healthy regrowth of reeds and other freshwater vegetation and wildlife, and others with serious salinity and halophytic (salt-loving) plants. Early concerns about endangered seed banks because of highly saline water and soils appear to be less serious than anticipated.
- *Collected soil and water samples from the natural and reflooded marshes.* The team collected roughly 70 water and 20 soil samples in the three marshes in existing and reflooded sites and in the drained marshes. The samples are being analyzed for a full range of parameters, including salinity, toxicity, pesticides, heavy metals, and water vector diseases. The team also did immediate data analyses on salinity, conductivity, total dissolved solids, dissolved oxygen, and pH. An interesting finding was that salinity was far lower than had been anticipated. The salinity of most of the water was 1000 parts per million or less, rather than the 3000-5000 expected. This level will support new freshwater plant growth. However, one site was 17,500, half of seawater, in a reflooded area of high soil salinity and no flowing water.
- *Met with marsh dwellers to assess social and economic conditions.* The team visited a wide range of tribesmen and women throughout the marshes from the traditional floating islands populations to rice growers living on the periphery. Many told horrific stories of repeated displacement, persecution, and destruction, eking out a minimal existence on wheat-growing and government handouts of basic foodstuffs. Others have lived stably on the edges of the marshes, returning to fishing and reed collecting when the waters came two months ago. Initial conversations reveal diverse economic niches of the marsh dwellers. In general, they suffer from an absence of public health services and lack clean drinking water. Many are drinking untreated water directly out of the marshes. Both illness and malnutrition are endemic.
- *Involved scientists from the University of Basrah.* The previous regime systematically destroyed an independent, intellectual community in the country. The research centers and universities acted as Baathist havens. The Marine Science Center is now a shell of what it once was: a well-known, highly regarded institution. Staff have been isolated from new developments in their fields for the past 20 years and lack any knowledge of environmental science and wetlands ecology, but they are well trained in their narrow technical fields. They are eager to participate in the program, which can offer training and research opportunities. The center was badly looted, although some faculty were able to hide equipment in their homes before the war ended. Baathist leaders are still a campus presence and of continuing importance, despite first-time elections for university leadership positions. We expect that the center and other research entities will serve as partners on the program so that skills are transferred and wetlands management approaches can be institutionalized in Iraq.

- *Established working relationships with national and district level Ministry of Water Resources officers and obtained some flow data.* The Ministry of Water Resources will play the lead role as program implementation partner. The team worked closely with officers of the ministry at the national and district levels. Both accompanied the team during its visits, collecting data, conducting interviews, and discussing program options actively. We see this as the first step toward their full participation. The team was able to collect some flow data during the visit from one district office. Visits to the district MOI offices in Al Amarah and Al Nasiriyah indicate the need for different strategies for partnering. The Al Amarah office had been entirely stripped, while the Al Nasiriyah office was completely intact, due to the quick thinking and effective actions of its director. As such, they are likely to play different program roles, at least in the short run.

Marshlands Restoration Program

The team is presently working with USAID and other agencies in thinking through the overall design for an initial marshlands restoration program. The approach to the program is:

- Integrated economic development and ecosystem marsh management;
- Implementation through priority pilot projects;
- Systematic data collection and monitoring; and
- Development of local capacity in marshland management.

The program will be carried out in close partnership with the Ministry of Water Resources. The Ministries Environment and Agriculture, as well as others, are expected to participate. At this point in our understanding of the situation, components of this program are likely to include the following:

- *Pilot restoration projects.* In the fall, soon after the submission of a detailed action plan, on the ground marshlands restoration projects will commence. Based on visits to the marshes, the team identified four pilot projects that might profitably be implemented. The process for carrying out pilot projects will be identifying current stages of restoration, monitoring progress, identifying possible new sites, consulting with local stakeholders, implementing, and monitoring. A number of institutions, including Duke University and the Iraq Foundation, will be involved. Potential project candidates include:
 - Reflooding drained areas near existing marshes to use seed sources and native species for marshland reclamation (e.g. Hawizeh and Central Marsh near Glory River)
 - Managing high salinity irrigation waters (e.g. divert Main Outfall Drain)
 - Constructing wastewater treatment wetlands to improve sewage treatment in small villages

- Constructing potable water treatment systems using reed beds in poorest areas since freshwater marsh plants provide excellent natural filtration and purification
- *Social and economic assistance.* No recent demographic survey exists during this period of social upheaval, so little is known about the remaining and returning populations. Social and economic conditions in the marshes are now dire. Public health services are largely absent, and schools are non-existent or terribly substandard. Malnutrition is widespread. Farmers have been growing wheat in a monoculture pattern and are barely living at a subsistence level, but rice is quickly returning after a 12 year hiatus. Opportunities may exist for introducing new high-value varieties for local and national markets, although credit and other services are likely needed. Other employment options may be introduced. Commercial fishing, once a highly prosperous endeavor, no longer exists since the newly returned fish are small and may be overfished, undermining fish stock regeneration. This program component will introduce in quick order carefully targeted interventions to improve the lives of people in the marshes, helping them to help themselves. Possible interventions include:
 - Supporting a demographic and public health survey presently being conducted by the AMAR ICF throughout the marshes to better understand the beneficiaries
 - Carrying out a survey of land tenure leading to a cadastral survey
 - Initiating interventions in agriculture, water management, and other areas
 - Identifying other employment options
- *Data collection and monitoring.* A program of this complexity and magnitude will require an accurate database. Beyond the program, Iraq requires a database on the marshlands for program planning, monitoring, and assessment and for policy reform. This component will carry out systematic data collection in the marshes both on the ground and through state-of-the-art remote sensing analysis. Potential activities include:
 - Remote sensing and soil mapping of the entire marshlands
 - Systematic water and soil sampling and analysis, narrowed by the exhaustive analysis presently being carried out
 - Monitor new water flow into newly re-flooded marshes to assess biotic response and water quality (e.g., Hammar Marsh near Kurmet Ali)
 - Create water holding ponds to divert and hold toxic or poor quality water
- *Hydrologic and hydroperiod modeling.* Serious, widespread planning for the marshlands must be grounded in an understanding of water availability and allocations within the basin. This component addresses the questions of how much water is in the river systems in Iraq and how it is to be applied within the marshes. Activities include:

- Development of a hydrologic model of the basin by the U.S. Army Corps of Engineers
- Development of a corresponding hydrodynamic or hydroperiod model of al-Hammar and al-Hawizeh marshes
- *Capacity building in marshland management.* The prime beneficiary of capacity-building activities will be the Ministry of Water Resources. The program will look beyond marshlands restoration and development assistance focusing here on developing understanding of and skills in marshlands management both in government agencies and in research centers. Possible activities include:
 - Study tours and short courses. As a way of jumpstarting the program, a group of Iraqi scientists and officials will be given a marshlands ecology short-course at Duke University, a partner in the program, and a visit to the Everglades. Other visits may be undertaken as deemed necessary and useful.
 - Training. Short courses will be designed to be carried out in Iraq on marshlands management and laboratory analysis.
 - Equipping laboratories for water and soil analyses. A select number of laboratories will be given equipment to carry out soil and water analyses to support the program.

Next Steps

The following steps will be carried out in program planning and implementation. These steps have been endorsed by the Interagency Marshlands Subgroup.

- *Scoping Trip Report in July.* The team will submit a complete trip report by the end of July which provides data analysis and scopes of work for follow-up activities.
- *Commencement of modeling efforts in August.* Meetings are already being held with the Corps of Engineers to evaluate proposals they have submitted.
- *Completion of a demographic and health survey in the marshlands.* Under the program, AMAR conducted a census of members of the Marsh Arab tribes still living in the area.
- *Development of methodology for systematic analysis in October and November.* The team will develop instruments and data collection plans and methodologies for the coming year.
- *Extended field trip in December.* An enlarged team will spend roughly three weeks in the marshlands continuing data collection and preparing for the action plan.
- *Action Plan developed in December.* The team will submit a “rolling” action plan to interested parties for review. The plan serves as the basis of the program and will

identify specific tasks, a timeframe, and a detailed budget. It will also contain recommended sites for the pilot projects.

- *Pilot projects and economic assistance start up in January.* With approval of the action plan, implementation begins.